WHAT IS CLAIMED IS:

1. A magnetic head for writing information on a relatively-moving medium, the head comprising:

a body having a leading end, a trailing end and a medium-facing surface, the body including an electrically conductive coil section at least partly encircled by a magnetic loop terminating in a write pole tip and a return pole tip that are disposed adjacent to the medium-facing surface and separated from each other by a nanoscale nonmagnetic gap, wherein the return pole tip is disposed between the write pole tip and the trailing end and the return pole tip has a medium-facing area that is at least two orders of magnitude greater than that of the write pole tip.

2. The head of claim 1, wherein the write pole tip has a trailing corner disposed closest to the trailing end, and magnetic flux emanating from the write pole tip has a maximum density emanating from the trailing corner and directed at an angle that is not perpendicular to the write pole tip.

3. The head of claim 1, further comprising a magnetoresistive sensor disposed less than one-half micron from the return pole tip.

4. The head of claim 1, further comprising an electrically conductive winding section electrically connected to the coil section, such that a current flowing in a first direction in the coil section flows in a substantially opposite direction in the winding section, with the coil section disposed between the write pole tip and the trailing end, and the winding section disposed between the write pole tip and the leading end.

5. The head of claim 4, wherein the coil section is part of an electrically conductive coil that spirals around a first magnetic section that magnetically couples the write pole tip to the return pole tip, and the winding section is part of an electrically conductive winding that spirals exterior to the magnetic loop, such that a current spiraling in a first direction in the coil spirals in a substantially opposite direction in the winding.

6. The head of claim 1, wherein the coil section is part of an electrically conductive coil that spirals around a first magnetic section that magnetically couples the write pole tip to the return pole tip, and the coil is connected to an electrically conductive winding that spirals exterior to the magnetic loop, such that a current flowing in a first direction in the coil flows in a substantially opposite direction in the winding.

7. The head of claim 1, wherein the write pole tip has a medium-facing area that is less than about thirty thousand square nanometers.

8. The head of claim 1, wherein the write pole tip has a trailing corner adjoining the nonmagnetic gap, and magnetic flux emanating from the trailing corner has a maximum density at an angle that is between about twenty degrees and sixty degrees from perpendicular to the medium-facing surface.

9. The head of claim 1, wherein the write pole tip has a trailing corner adjoining the nonmagnetic gap, the return pole tip has a leading corner adjoining the nonmagnetic gap, and the trailing corner is made of higher magnetic saturation material than that of the leading corner.

10. The head of claim 1, wherein the nonmagnetic gap expands at a throat height, the throat height being measured from the medium-facing surface and being less than one-half micron.

11. The head of claim 1, further comprising a magnetoresistive sensor that is disposed in the body between a pair of shields that are located adjacent to the magnetic loop.

12. The head of claim 1, further comprising a magnetoresistive sensor disposed less than one-half micron from the return pole tip.

13. A magnetic head for writing information on a relatively-moving medium containing a media layer and a soft magnetic underlayer, the head comprising:

a body having a leading end, a trailing end and a medium-facing surface, the body including an electrically conductive coil section at least partly encircled by a magnetic loop terminating in a write pole tip and a return pole tip that are disposed adjacent to the medium-facing surface and separated from each other by a nanoscale nonmagnetic gap, wherein the return pole tip is disposed between the write pole tip and the trailing end and the return pole tip has a medium-facing area that is at least two orders of magnitude greater than that of the write pole tip.

14. The head of claim 13, wherein the write pole tip has a trailing corner disposed closest to the trailing end, and magnetic flux emanating from the write pole tip has a maximum density emanating from the trailing corner and directed at an angle that is not perpendicular to the media layer.

15. The head of claim 13, further comprising a magnetoresistive sensor disposed less than one-half micron from the return pole tip.

16. The head of claim 13, further comprising an electrically conductive winding section electrically connected to the coil section, such that a current flowing in a first direction in the coil section flows in a substantially opposite direction in the winding section, with the coil section disposed between the write pole tip and the trailing end, and the winding section disposed between the write pole tip and the leading end.

17. The head of claim 13, wherein a distance between the write pole tip and the return pole tip is approximately equal to a spacing between the write pole tip and the soft magnetic underlayer of the medium.

18. The head of claim 13, wherein the coil section is part of an electrically conductive coil that spirals around a first magnetic section that magnetically couples the write pole tip to the return pole tip, and the coil is connected to an electrically conductive

winding that spirals exterior to the magnetic loop, such that a current spiraling in a first direction in the coil spirals in a substantially opposite direction in the winding.

19. The head of claim 13, wherein the write pole tip has a medium-facing area that is less than about thirty thousand square nanometers.

20. The head of claim 13, wherein the write pole tip has a trailing corner disposed adjacent to the trailing end, and magnetic flux from the trailing corner that impinges the media layer is directed in a range between about twenty degrees and sixty degrees from perpendicular to the medium-facing surface.

21. The head of claim 13, wherein the second ferromagnetic layer is separated from the first ferromagnetic layer by more than one-half micron at a throat height, the throat height being measured from the medium-facing surface and being less than one-half micron.

22. The head of claim 13, wherein the nonmagnetic gap expands at a throat height, the throat height being measured from the medium-facing surface and being less than one micron.

23. A magnetic head for writing information on a relatively-moving medium containing a media layer and a soft magnetic underlayer, the head having a leading end, a trailing end and a medium-facing surface, the head comprising:

a first ferromagnetic layer terminating in a first pole tip disposed adjacent to the medium-facing surface;

a second ferromagnetic layer magnetically coupled to the first ferromagnetic layer in a region that is removed from the medium-facing surface, the second ferromagnetic layer terminating in a second pole tip that is disposed adjacent to the medium-facing surface and located between the first pole tip and the trailing end, the second pole tip being separated from the first pole tip by a nanoscale nonferromagnetic gap and having a medium-facing area that is at least two orders of magnitude greater than that of the first pole tip; and

an electrically conductive coil section disposed between the first ferromagnetic layer and the second ferromagnetic layer to induce magnetic flux in the first ferromagnetic layer.

24. The head of claim 23, further comprising a magnetoresistive sensor disposed less than one-half micron from the second pole tip.

25. The head of claim 23, wherein a distance between the first pole tip and the second pole tip is approximately equal to a spacing between the first pole tip and the soft magnetic underlayer of the medium.

26. The head of claim 23, further comprising an electrically conductive winding section electrically connected to the coil section, with the first ferromagnetic layer disposed between the coil section and the winding section, such that a current flowing in a first direction in the coil section flows in a substantially opposite direction in the winding section.

27. The head of claim 23, wherein the coil section is part of an electrically conductive coil that spirals around the region that magnetically couples the first ferromagnetic layer to the second ferromagnetic layer, and the coil is connected to an

electrically conductive winding that spirals around an axis that is aligned with the magnetic coupling region, such that a current spiraling in a first direction in the coil spirals in a substantially opposite direction in the winding.

28. The head of claim 23, wherein the first pole tip has a medium-facing area that is less than about thirty thousand square nanometers.

29. The head of claim 23, wherein the first pole tip has a trailing corner disposed adjacent to the trailing end, and magnetic flux from the trailing corner that impinges the media layer is directed in a range between about twenty degrees and sixty degrees from perpendicular to the medium-facing surface.

30. The head of claim 23, wherein the nonmagnetic gap expands at a throat height, the throat height being measured from the medium-facing surface and being less than one micron.

31. A magnetic head for writing information on a relatively-moving medium, the head having a leading end, a trailing end and a medium-facing surface, the head comprising:

a ferromagnetic write pole layer terminating in a write pole tip that is disposed adjacent to the medium-facing surface;

a ferromagnetic return pole structure disposed between the write pole layer and the trailing end and magnetically coupled to the write pole layer in a coupling region, the return pole structure terminating adjacent to the medium-facing surface in a return pole tip having an area at least two orders of magnitude greater than that of the write pole tip, the pole tips separated by a nanoscale nonferromagnetic gap;

a first electrically conductive coil that winds about the coupling region, the first coil including at least one coil section that is disposed between the write pole layer and the return pole structure; and

a second electrically conductive coil that carries current in a substantially opposite direction to that flowing in the first coil to induce a magnetic field between the coils that is stronger than the field induced outside the coils, the second coil disposed closer than the first coil to the trailing end.

32. The head of claim 31, wherein the first ferromagnetic layer has a thickness that is less than one-half micron.

33. The head of claim 31, further comprising a magnetoresistive sensor disposed within one-quarter micron of the second pole tip.

34. The head of claim 31, wherein the second ferromagnetic layer is separated from the first ferromagnetic layer by more than one-half micron at a throat height, wherein the throat height is measured from the medium-facing surface and is less than one-half micron.